

# **EXERCISE BICYCLE**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

5           The present invention relates generally to exercise apparatuses, and more particularly, to an exercise bicycle.

### **2. Description of the Related Art**

Referring to FIG. 1, a conventional indoor exercise bicycle is composed of a main frame 1, a handrail 2, a saddle 3, a transmission set 4, and a resistance device 5.  
10   The transmission set 4 includes a pedal 4a, a crank 4b, a driving wheel (not shown), a driven wheel 4c, and a belt (not shown) running on the driving wheel and driven wheel 4c. The user keeps pedaling the pedal 4a to drive the driving wheel to rotate, and then the driven wheel 4c is driven to rotate by the driving wheel via the belt. The resistance device 5 offers an appropriate resistance against the rotation of the driven wheel 4c.

15           Although the user can do lots of pedaling exercise stationarily on the indoor exercise bicycle to strengthen the muscle of the legs by the simulation of riding a bicycle, the exercise bicycle only enables the user to exercise the muscle of the legs.

## **SUMMARY OF THE INVENTION**

20           The primary objective of the present invention is to provide an improved exercise bicycle which enables the user to do exercise by the simulation of riding a bicycle and a horse.

          The secondary objective of the present invention is to provide an improved exercise bicycle which enables the user to exercise the muscle of the legs and the waist  
25   at the same time.

The foregoing objectives of the present invention are attained by the exercise bicycle which is composed of a frame and a driven wheel. The frame includes a base, a driven member which has an end pivotably connected to the base, and a contacting portion disposed on the driven member. The driven wheel, which is stationarily  
5 rotatably connected to the base and is driven to rotate by an external force, includes a rolling face contacted with the contacting portion for driving the driven member to reciprocatingly pivot to said base when the driven wheel is driven by the external force to rotate.

## 10 **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a perspective view of a prior art;

FIG. 2 is a side view of a first preferred embodiment of the present invention;

FIG. 3 is a schematic view of the first preferred embodiment of the present invention at work;

15 FIG. 4 is a side view of a second preferred embodiment of the present invention;

FIG. 5 is a side view of a third preferred embodiment of the present invention;

FIG. 6 is a side view of the third preferred embodiment of the present invention, showing an alternative form of a face cam;

20 FIG. 7 is a side view of a fourth preferred embodiment of the present invention;

FIG. 8 is a side view of a fifth preferred embodiment of the present invention;

FIG. 9 is a side view of a sixth preferred embodiment of the present invention;

FIG. 10 is a side view of a seventh preferred embodiment of the present invention; and

25 FIG. 11 is a side view of an eighth preferred embodiment of the present

invention.

## DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 2, an exercise bicycle 100 constructed according to a first  
5 preferred embodiment of the present invention is composed of a frame 10, a driving  
wheel 20, a belt 30, and a driven wheel embodied as an eccentric wheel 40.

The frame 10 includes a base 11, a driven member 12, and a handrail 13. The  
base 11 is formed of a plurality of struts connected with one another to stably stand on  
the ground. The driven member 12 is a rigid rod member, and has a top end thereof  
10 connected with a saddle 14 and a bottom end thereof pivotably connected to the base 11  
by a pivot A. The handrail 13 is fixedly mounted on the base 11. A linkage bar 15 has  
one end secured to a bottom end of the driven member 12 and the other end extending  
towards a rear side of the exercise bicycle 100. A cylindrical roller 16 is rotatably  
connected with the other end of the linkage bar and is provided with a contacting  
15 portion at an outer edge.

The driving wheel 20 is stationarily rotatably connected to the frame 10 and  
connected with a crank 21 and a pedal 22 on which the user's legs work to drive the  
driving wheel 20 to rotate.

The eccentric wheel 40 is rotatably connected to the base 11 to be suspended  
20 away from the ground and includes a round axial neck 41 and a rolling face 42. The  
axial neck 41 is integrally formed on and protrudes from a lateral side of the eccentric  
wheel. The belt 30 runs on the driving wheel 20 and the axial neck 41. When the driving  
wheel 20 is driven to rotate, the eccentric wheel 40 is driven to rotate by the driving  
wheel 20 via the belt 30. The rolling face 42 of the eccentric wheel 40 keeps touching  
25 the contacting portion of the roller 16 and a rolling path is formed while the rolling face

42 moves along with the eccentric wheel 40. The rolling path causes a reciprocating movement of the roller so as to push the driven member 14 to reciprocatingly pivot on the pivot A. In other words, the reciprocating movement of the roller 16 drives the driven member 12 and the saddle 14 to synchronously pivot reciprocatingly, as shown in FIG. 3.

In operation, the user operates the exercise bicycle 100 by the legs pedaling the pedal 22, and further at the same time, the driven member 12 and the saddle 14 will be driven to pivot reciprocatingly within a predetermined range, thereby enabling the user's hip to be lifted and lowered like riding a horse. Accordingly, the exercise bicycle 100 of the present invention enables the user to do the exercise by the simulation of riding a bicycle and a horse, and further exercises the muscle of the legs and the waist of the user at the same time.

Further, the proportion of the diameter of the driving wheel 20 to the axial neck 41 can be varied to further alter the proportion of the rotational speed of the driving wheel 20 to the eccentric wheel 40. In this embodiment, the proportion of the diameter of the driving wheel 20 to the eccentric wheel 40 is 1:1, i.e. while the driving wheel 20 is rotated for one round, the eccentric wheel 40 is also rotated for one round, and further the driven member 12 is driven to pivot back and forth for one round.

Referring to FIG. 4, the exercise bicycle 200 constructed according to a second preferred embodiment of the present invention is different from the aforementioned embodiment in that the driven wheel is an elliptical discoid cam 50 which includes an axial neck 51 for the belt 30 running on and a rolling face 52 for contacting against the roller 16. When the discoid cam 50 is rotated along with the driving wheel 20, it drives the roller 16 to move reciprocatingly so as to further drive the driven member 14 to reciprocatingly pivot on the pivot A.

Referring to FIG. 5, the exercise bicycle 300 constructed according to a third preferred embodiment of the present invention is different from the aforementioned embodiment in that the driven wheel is a face cam 60 which includes a round axial neck 61 and an annular ditch 62 recessed thereon. The roller 17 is received in and moved  
5 along with the annular ditch 62. As shown in FIG. 6, the ditch 71 of the face cam 70 is alternatively elliptical.

Referring to FIG. 7, the exercise bicycle 400 constructed according to a fourth preferred embodiment is different from the aforementioned embodiments in that the exercise bicycle 400 includes a ribbed cam 80 and two rollers 18 and 19. The ribbed  
10 cam 80 is provided with an annular rib 81 around an outer edge thereof. The two rollers 18 and 19 respectively engage against an inner periphery and an outer periphery of the rib 81 to clamp the rib 81.

Referring to FIG. 8, the exercise bicycle 500 constructed according to a fifth preferred embodiment is different from the aforementioned embodiments in that the  
15 handrail 501 is directly fixedly connected to the bottom end of the driven member 502 at an end thereof and is driven to pivot reciprocatingly by the driven wheel 503, such that the driven member 502 pivots reciprocatingly along with the handrail 501.

Referring to FIG. 9, the exercise bicycle 600 constructed according to a sixth preferred embodiment is different from the aforementioned embodiments in that an  
20 active gear 602 is mounted at a side of the driving wheel 601 and a motor 603 is fixedly mounted to the frame 604. When the motor 603 is operated, a passive gear 605 in mesh with the active gear 602 is driven to rotate and further to drive the driving wheel 601 and the driven wheel 606 to rotate, and meanwhile, to forcibly drive the crank 607 and the pedal 608 to rotate, such that the driven member 609 is driven to pivot  
25 reciprocatingly. Hence, the exercise bicycle 600 forces the user's legs to pedal and

simulate the horse riding, which is adapted for people whose bodies need rehabilitation.

Referring to FIG. 10, the exercise bicycle 700 constructed according to a seventh preferred embodiment is different from the aforementioned embodiments in that the driving wheel and the belt are not included in the exercise bicycle 700. The driven  
5 wheel 701 embodied as an eccentric wheel is directly connected with the crank 702 and the pedal 703 and is rotated by the user's pedaling to drive the driven member 705 to pivot reciprocatingly via the roller 704.

Referring to FIG. 11, the exercise bicycle 800 constructed according to an eighth preferred embodiment is different from the aforementioned seventh embodiment  
10 in that the driven wheel 801 embodied an eccentric wheel is driven to rotate by a motor 802 and further drives a passive gear 803 in mesh with the an active gear 804 to rotate, and meanwhile, the active gear 804 forces the driven wheel 801, the crank 805, and the pedal 806 to rotate together.